

CLAIMS

We claim:

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1. A method of screening drug candidates comprising:
 - a) providing a cell that expresses an expression profile gene which encodes a protein selected from the group consisting of BCH1, BCA2, BCJ7, BCN1, BCN5, BCO2, BCQ5, BCR2, BCX2 and BCY3 or a fragment thereof;
 - b) adding a drug candidate to said cell; and
 - c) determining the effect of said drug candidate on the expression of said expression profile gene.
 2. A method according to claim 1 wherein said determining comprises comparing the level of expression in the absence of said drug candidate to the level of expression in the presence of said drug candidate, wherein the concentration of said drug candidate can vary when present, and wherein said comparison can occur after addition or removal of the drug candidate.
 3. A method according to claim 1 wherein the expression of said profile gene is decreased as a result of the introduction of the drug candidate.
 4. A method of screening for a bioactive agent capable of binding to a breast cancer modulator protein (BCMP), wherein said BCMP is BCH1 or a fragment thereof, said method comprising combining said BCMP and a candidate bioactive agent, and determining the binding of said candidate agent to said BCMP.
 5. A method for screening for a bioactive agent capable of modulating the activity of a breast cancer modulator protein (BCMP), wherein said BCMP is BCH1 or a fragment thereof, said method comprising combining said BCMP and a candidate bioactive agent, and determining the effect of said candidate agent on the bioactivity of said BCMP.
 6. A method of evaluating the effect of a candidate breast cancer drug comprising:
 - a) administering said drug to a patient;
 - b) removing a cell sample from said patient; and
 - c) determining the expression profile of said cell.

7. A method according to claim 6 further comprising comparing said expression profile to an expression profile of a healthy individual.

8. A biochip comprising a nucleic acid segment encoding BCH1 or a fragment thereof, wherein said biochip comprises fewer than 1000 nucleic acid probes.

5 9. A method of diagnosing breast cancer comprising:
a) determining the expression of a gene encoding BCH1 or a fragment thereof in a first tissue type of a first individual; and
b) comparing said expression of said gene from a second normal tissue type from said first individual or a second unaffected individual;
10 wherein a difference in said expression indicates that the first individual has breast cancer.

10. An antibody which specifically binds to BCH1, or a fragment thereof.

11. The antibody of Claim 10 wherein said fragment is BCH1p1 or BCH1p2.

12. The antibody of Claim 10, wherein said antibody is a monoclonal antibody.

13. The antibody of Claim 10, wherein said antibody is a humanized antibody.

14. The antibody of Claim 10, wherein said antibody is an antibody fragment.

15. A method for screening for a bioactive agent capable of interfering with the binding of a breast cancer modulator protein (BCMP) or a fragment thereof and an antibody which binds to said BCMP or fragment thereof, said method comprising:

a) combining a BCMP or fragment thereof, a candidate bioactive agent and an antibody which binds to said BCMP or fragment thereof; and
b) determining the binding of said BCMP or fragment thereof and said antibody.

16. A method for inhibiting breast cancer, said method comprising administering to a cell a composition comprising an antibody to BCH1 or a fragment thereof.

17. The method of Claim 16 wherein said cell is a cell of an individual.

18. The method of Claim 17 wherein said individual has cancer.

19. The method of Claim 16 wherein said fragment is selected from the group consisting of BCH1p1 and BCH1p2.

20. The method of Claim 16 wherein said antibody is a humanized antibody.

21. The method of Claim 16 wherein said antibody is an antibody fragment.

22. A method for inhibiting breast cancer in a cell, wherein said method comprises administering to a cell a composition comprising antisense molecules to BCH1.

23. A peptide consisting essentially of BCH1p1.

24. A composition comprising the peptide of Claim 23.

25. A peptide consisting essentially of BCH1p2.

26. A composition comprising the peptide of Claim 25.

27. A method of eliciting an immune response in an individual, said method comprising administering to said individual a composition comprising BCH1 or a fragment thereof.

28. A method of eliciting an immune response in an individual, said method comprising administering to said individual a composition comprising a nucleic acid comprising a sequence encoding BCH1 or a fragment thereof.

29. A composition capable of eliciting an immune response in an individual, said composition comprising BCH1 or a fragment thereof and a pharmaceutically acceptable carrier.

30. A composition capable of eliciting an immune response in an individual, said composition comprising a nucleic acid comprising a sequence encoding BCH1 or a fragment thereof and a pharmaceutically acceptable carrier.

31. A method of treating an individual for breast cancer comprising administering to said individual an inhibitor of BCH1.

32. The method of Claim 31 wherein said inhibitor is an antibody.

33. The method of Claim 31 wherein said individual is non-responsive to an anti-estrogen and is positive for estrogen receptor.

34. The method of Claim 33 wherein said method further comprises administering an anti-estrogen.

35. A method for determining the prognosis of an individual with breast cancer comprising determining the level of BCH1 in a sample, wherein a high level of BCH1 indicates a poor prognosis.

36. A method for determining whether an individual with breast cancer will be non-responsive to anti-estrogen therapies comprising determining the level of BCH1 wherein a high level of BCH1 indicates that an individual will be non-responsive.

37. A method of neutralizing the effect of a BCH1, or a fragment thereof, comprising contacting an agent specific for said protein with said protein in an amount sufficient to effect neutralization.